ACC.14
TCT@ACC-i2 | innovation in intervention

A1497
JACC April 1, 2014
Volume 63, Issue 12

Pulmonary Hypertension and Venous Thrombo-embolic Disease

ELECTROCARDIOGRAM BASED SCORING SYSTEM FOR PREDICTING SECONDARY PULMONARY HYPERTENSION: A CROSS-SECTIONAL STUDY

Poster Contributions
Hall C
Sunday, March 30, 2014, 3:45 p.m.-4:30 p.m.

Session Title: Pulmonary Hypertension and Pulmonary Thrombo-embolic Disease IV
Abstract Category: 23. Pulmonary Hypertension and Pulmonary Thrombo-embolic Disease
Presentation Number: 1223-212

Authors: *Ghanshyam Palamaner Subash Shantha, Nimesh Patel, Sindhu Chandran, Sukrut Nanavaty, Pranjal Boruah, Jignesh Sheth, Samir Pancholy, The Wright Center for Graduate Medical Education, Scranton, PA, USA*

Background: Electrocardiogram (EKG) based scoring systems for predicting secondary pulmonary hypertension (PHT) are scanty. In this study, we have attempted to develop an EKG based scoring system to predict PHT.

Methods: Case records of 552 consecutive patients from a tertiary hospital, who underwent right heart catheterization between 2006 - 2009 were analyzed. Surface EKG of all patients were assessed for R wave in lead V1 ≥ 6 mm, R wave in V6 ≤ 3 mm, S wave in V6 ≥ 3 mm, right atrial enlargement (RAE), right axis deviation (RAD) and left atrial enlargement (LAE). Mean pulmonary artery pressure ≥ 25 mmhg, determined by right heart catheterization, was defined as PHT.

Results: 332 patients from the study cohort formed the development cohort (DC) and the remaining 220 patients formed the validation cohort (VC). In the DC, based on odds ratios of association, RAE, LAE, RAD, R wave in V1 ≥ 6 mm were respectively assigned scores 5, 2, 2 and 1 to form a 10 point scoring system to predict PHT. Scores, 5 points and 7 points in DC showed C statistic of 0.83 and 0.89 respectively for discriminating PHT. There were none with scores > 7. C statistic for RAE alone was 0.83 which was significantly lower (P = 0.021) than the C statistic for 7 point score (Figure 1). The reliability of this scoring system in the validation cohort was acceptable.

Conclusions: Our EKG based scoring system has good accuracy in predicting PHT. Considering the high prevalence of PHT in our sample, our results need validation in larger general population cohorts.